



# TEACHER VS. TECHNOLOGY: WILL AI REPLACE OR ASSIST EDUCATORS IN PRIMARY SCHOOLS?

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## ABSTRACT

This study explores stakeholders' perceptions of Artificial Intelligence (AI) in primary education through the lens of the question: *Will AI replace or assist educators?* Using data from 30 respondents including parents, teachers, and technologists, the research evaluates awareness, usage, effectiveness, and challenges of AI tools in learning. Objectives include assessing AI's impact on student skills and learning outcomes, and understanding opinions on the evolving role of teachers. Findings show moderate awareness and limited usage of AI tools at home and school. While digital literacy and reasoning skills were commonly developed, soft skills saw less improvement. Most respondents agreed that AI makes learning more interesting but expressed concerns about screen time and reduced human interaction. The majority viewed AI as a supportive tool, not a replacement for teachers. Chi-square tests found no statistically significant associations but strong descriptive support. The study concludes that AI is best positioned as a complement to traditional teaching, requiring teacher training and balanced integration.

**KEYWORDS:** Artificial Intelligence, Education, Teachers, Technology & Learning

## INTRODUCTION

The rise of Artificial Intelligence (AI) in the field of education has sparked significant debate regarding its role in shaping the future of teaching and learning, especially at the primary level. With AI-powered tools becoming increasingly accessible, the question arises: will AI replace traditional educators, or will it serve as an aid to enhance their roles? This research article explores this critical issue by examining the awareness, usage, and perceptions of key stakeholders—parents, teachers, administrators, technologists, and researchers—regarding AI-based educational tools in primary schools. The study is based on primary data collected from 30 respondents and provides a detailed analysis of various dimensions of AI integration in education. It highlights the current level of awareness and use of AI tools such as ChatGPT, Byju's, smart classroom applications, and gamified learning platforms. Furthermore, it evaluates the impact of these tools on students' academic performance, skill development, health, and interest in learning. While many respondents acknowledge the potential of AI to improve logical reasoning, digital literacy, and learning motivation, concerns such as excessive screen time, reduced teacher-student interaction, and privacy issues also emerge.

The primary objectives of this study are to examine the awareness and use of AI tools in primary education, assess their impact on students' learning and development, and understand stakeholder perceptions regarding the potential of AI to replace or support teachers. The research is guided by two hypotheses: that AI tools significantly enhance students' learning and skills, and that most stakeholders believe AI can support but not replace human educators. This article provides data-driven insights into how AI is transforming the primary education landscape. It aims to contribute to the ongoing discourse on

the role of technology in education and inform policies that ensure a balanced, inclusive, and human-centered approach to teaching in the age of AI.

### Objectives of Study:

1. To study awareness and use of AI tools in primary education.
2. To assess the impact of AI on students' learning, skills, and health.
3. To understand views on AI's role in supporting or replacing teachers.

### Statement of The Research Problem

The rapid advancement of Artificial Intelligence (AI) has significantly transformed the education sector worldwide, especially after the COVID-19 pandemic accelerated the adoption of digital learning tools. According to a UNESCO (2023) report, over 1.6 billion learners were affected by school closures during the pandemic, which catalyzed the global shift toward AI and EdTech platforms. In India, platforms like Byju's, Vedantu, and AI-enabled learning apps such as ChatGPT have gained widespread attention. However, the increasing reliance on such tools has raised critical concerns regarding their effectiveness, accessibility, and their potential to replace traditional educators. The National Education Policy (NEP 2020) emphasizes the integration of AI in school curricula to enhance learning outcomes and digital literacy. However, studies have found a stark digital divide between urban and rural areas, with only 24% of Indian households having internet access (National Sample Survey, 2019). Furthermore, the NITI Aayog (2021) observed that while AI can personalize learning and improve student engagement, the lack of trained teachers and over-dependence on AI could compromise the development

of essential socio-emotional skills in children. Despite the promise of AI in enhancing educational efficiency, concerns remain regarding its impact on students' mental health, screen time, data privacy, and overall development. Importantly, while some believe AI can revolutionize education, others argue it should merely support—not replace—teachers, who play a critical role in holistic child development. Thus, there is a pressing need to critically evaluate the perceived and actual role of AI in primary education and determine whether it acts as an assistant or a replacement to educators.

#### Hypotheses of The Study:

1. AI tools significantly enhance students' learning and skills.
2. Most stakeholders believe AI can assist but not replace teachers.

Sr. No.	Role	Frequency	Percentage
1	Parent	11	36.7
2	Primary Teacher	4	13.3
3	Primary Teacher + Parent/ Administrator/Researcher/ Technologist	8	26.7
4	Technologist + Researcher	4	13.3
5	Administrator / Researcher / Technologist (Other combined roles)	3	10.0
	Total	30	100.0

Source: Field Survey, 2025

**Table No.1: Role in Primary Education**

Table No.1 presents the distribution of respondents based on their roles in the primary education ecosystem. Among the 30 respondents, the highest proportion—36.7% (11 individuals)—were parents, indicating their key role and interest in their children's education and the growing impact of technology at home. This is followed by a significant group (26.7%) who hold multiple roles, such as being a teacher and a parent or administrator, showing their broader experience and understanding of the education system from various perspectives.

Only 13.3% of respondents were exclusively primary teachers, and another 13.3% identified as technologists and researchers, reflecting the inclusion of technically aware respondents who can critically assess AI's role in education. A smaller segment (10%) included administrators and researchers in combined roles. In conclusion, this distribution shows that the study captures diverse viewpoints from all key stakeholders involved in primary education, including those who implement, experience, and evaluate educational technologies.

Sr. No.	Response	Frequency	Percentage
1	Yes	17	56.7
2	No	9	30.0
3	Not Sure	4	13.3
	Total	30	100.0%

Source: Field Survey, 2025

**Table No.2: Awareness of AI-Based Educational Tools**

Table No. 2 presents the level of awareness regarding AI-based educational tools among stakeholders in primary education. Out of 30 respondents, 56.7% reported being aware of such tools, while 30% were not aware, and 13.3% were unsure. This indicates that although a majority have basic awareness, a considerable portion still lack familiarity or clarity about AI tools. The data highlights the need for increased digital literacy and orientation efforts among key stakeholders such as parents, teachers, and administrators. Improving awareness is essential for the effective adoption and meaningful use of AI tools in the learning environment.

Sr. No.	Response	Frequency	Percentage
1	No	16	53.3
2	Yes	12	40.0
3	Not Sure	2	6.7
	Total	30	100.0%

Source: Field Survey, 2025

**Table No.3: Use of AI Tools by Children at Home**

Table No. 3 shows the usage of AI tools by children at home. Among the 30 respondents, 53.3% reported that children do not use AI tools at home, while 40% confirmed that children do use them, and 6.7% were unsure. This indicates that more than half of the children are currently not engaging with AI tools in their home environment, suggesting limited exposure beyond the classroom. The data reflects a potential gap in home-based digital learning practices and emphasizes the need for increased access, parental support, and awareness to encourage responsible and productive use of AI tools among children at home.

Sr. No.	AI Tool Used	Frequency	Percent	Cumulative Percent
1	AI-Based Games for Learning (Gamified Learning Platforms)	1	3.3%	3.3%
2	ChatGPT and AI Bots	9	30.0%	33.3%
3	Byju's	2	6.7%	40.0%
4	None of These	15	50.0%	90.0%
5	Smart Classroom AI Tools	3	10.0%	100.0%
	Total	30	100.0%	

Source: Field Survey, 2025

**Table No.4: AI Tools Used at Home and School**

Table No. 4 presents data on the types of AI tools used by children at home and school. Out of 30 respondents, 50% indicated that none of the listed AI tools are being used, showing limited engagement with specific AI applications. Among those using AI tools, 30% reported the use of ChatGPT and AI bots, making it the most commonly used tool, followed by Smart Classroom AI tools (10%), Byju's (6.7%), and AI-based games (3.3%). This suggests that while some children are

exposed to AI-driven learning platforms, overall usage remains low and fragmented, with many either unaware of or not using such tools regularly. The data underscores the need to promote awareness and accessibility of effective AI tools to enhance learning experiences both at home and in school settings.

Sr. No.	Name of AI Educational Tool	Frequency	Percentage
1	ChatGPT and Similar Tools (Chat GPT, Chat Bot, AI Bots)	8	26.7%
2	Byju's (Byjus, Bayju, Byjus App, Bujuj)	4	13.3%
3	General Reference to AI	1	3.3%
4	Diksha	1	3.3%
5	Gemini	1	3.3%
6	Smart Class / Smart Classroom	2	6.7%
7	Tab / Mobile / WhatsApp / Teaching	4	13.3%
8	Other Digital Media (e.g., Audio-Video Tools, Online Lectures)	1	3.3%
9	Not Aware	7	23.3%
	Total	30	100.0%

Source: Field Survey, 2025

**Table No.5: Perception of Respondents about Popular AI Educational Tools**

Table No. 5 reflects the respondents' perception of popular AI educational tools. Among the 30 participants, 26.7% identified ChatGPT and similar tools as the most recognized AI-based platforms, followed by Byju's and Tab/Mobile/WhatsApp-based teaching methods (each at 13.3%). A notable 23.3% of respondents reported being not aware of any AI tools, indicating a considerable gap in familiarity. Tools like Diksha, Gemini, Smart Classrooms, and general references to AI had minimal recognition, each receiving only 3.3% to 6.7% responses. This data highlights that while certain AI platforms are gaining visibility, overall awareness of diverse AI educational tools remains limited and scattered, emphasizing the need for broader exposure and training for effective educational integration.

Sr. No.	Response Category	Frequency	Percentage	Cumulative Percent
1	Strongly Agree	6	20.0%	20.0%
2	Agree to a Great Extent	4	13.3%	33.3%
3	Moderately Agree	6	20.0%	53.3%
4	Agree to a Small Extent	6	20.0%	73.3%
5	Not at All Agree	8	26.7%	100.0%
	Total	30	100.0%	

Source: Field Survey, 2025

**Table No.6: Perception of Respondents on the Effectiveness of AI-Based Tools Compared to Traditional Teaching Methods**

Table No. 6 illustrates the respondents' perception of the effectiveness of AI-based tools compared to traditional teaching methods. Among the 30 respondents, 26.7% do not agree at all that AI tools are more effective, while the rest are divided across varying degrees of agreement. 20% strongly agree, 13.3% agree to a great extent, and another 20% moderately agree, showing a mixed yet positive inclination toward AI's potential. However, an equal 20% agree only to a small extent, indicating cautious acceptance. Overall, the responses reflect a diverse range of opinions, with a significant portion still skeptical about replacing or outperforming traditional methods. This suggests that while there is growing interest in AI-based education, its effectiveness is not yet universally accepted, highlighting the need for further awareness and evidence-based implementation.

Sr. No.	Skill Category	Frequency	Percentage
1	Logical Reasoning	10	33.3%
2	Mathematical and Quantitative Skills	9	30.0%
3	General Knowledge	10	33.3%
4	Digital Literacy and Understanding of Technology	13	43.3%
5	Language Skills and Reading	7	23.3%
6	Concentration, Memory, and Learning Speed	7	23.3%
7	Creativity, Thinking, Meditation, and Imagination	5	16.7%
8	Social and Emotional Intelligence, Teamwork	5	16.7%
9	Communication Skills and Confidence	3	10.0%

Source: Field Survey, 2025

**Table No.7: Skills Developed with the Help of AI**

Table No. 7 highlights the various skills perceived to be developed through the use of AI-based educational tools. Among the respondents, the most commonly cited benefit was the improvement of digital literacy and technological understanding (43.3%), followed by enhancements in logical reasoning and general knowledge (each at 33.3%), and mathematical and quantitative skills (30%). Moderate development was reported in language skills, concentration, and learning speed (each at 23.3%). Skills like creativity, social-emotional intelligence, and communication skills received lower responses, ranging from 10% to 16.7%. This indicates that AI tools are perceived to be more effective in strengthening cognitive and digital competencies rather than soft skills and interpersonal abilities. The data suggests a need to design AI tools that can also support holistic skill development in children, including emotional, social, and communication aspects.

Sr. No.	Response	Frequency	Percentage
1	Yes, very high interest	13	43.3%
2	Yes, slightly more interest	10	33.3%
3	Can't say	3	10.0%
4	No, more interest in traditional textbooks	2	6.7%
5	Both seem equally interesting	2	6.7%
Total		30	100.0%

Source: Field Survey, 2025

**Table No.8: Children Find AI-Based Educational Tools More Interesting than Traditional Textbooks**

Sr. No	Response Category	Slightly Agree	Strongly Agree	Largely Agree	Do Not Agree at All	Moderately Agree	Total
1	Reduced Eye Strain Due to Availability of AI Voice Assistants and Audio-Based Learning	13 (43.30%)	2 (6.70%)	4 (13.30%)	6 (20.00%)	5 (16.70%)	30 (100.00%)
2	AI-Enabled Games and Educational Apps Promote Physical Activity (e.g., AR/VR-based Learning)	9 (30.00%)	1 (3.30%)	1 (3.30%)	15 (50.00%)	4 (13.30%)	30 (100.00%)
3	Positive impact of AI-Enabled Fitness and Yoga Apps on Primary Students' Physical Health	9 (30.00%)	1 (3.30%)	3 (10.00%)	10 (33.30%)	7 (23.30%)	30 (100.00%)
4	AI helps reduce stress and fatigue as it understands the individual pace of learning.	12 (40.00%)	2 (6.70%)	3 (10.00%)	9 (30.00%)	4 (13.30%)	30 (100.00%)

Source: Field Survey, 2025

**Table No.9: Respondents' Perception of the Impact of AI-Based Tools on Children's Health**

Table No. 9 presents respondents' perceptions regarding the health impact of AI-based educational tools on children. For the first aspect—reduced eye strain through voice assistants and audio-based learning—a majority agreed positively, with 43.3% slightly agreeing and 13.3% largely agreeing, indicating moderate support for the idea that audio features may help reduce screen-related issues. Regarding whether AI-enabled games and apps promote physical activity, 50% did not agree at all, suggesting strong skepticism about the physical benefits of such tools. Similarly, for the impact of fitness and yoga apps, opinions were divided—33.3% disagreed, while 30% slightly agreed, and 23.3% moderately agreed, showing mixed responses. Lastly, when asked whether AI helps reduce stress and fatigue by adjusting to individual learning pace, 40% slightly agreed, but 30% did not agree at all, again revealing varied perspectives. Overall, the table indicates that while some health-related advantages of AI tools—like reduced eye strain and stress—are moderately accepted, most respondents are

Table No. 8 presents respondents' views on children's interest in AI-based educational tools compared to traditional textbooks. A majority, 43.3%, believe that children show very high interest in AI-based tools, while 33.3% feel children are slightly more interested in them. Only 6.7% each reported that children prefer traditional textbooks or find both equally interesting, and 10% were unsure. Overall, the data indicates that 76.6% of respondents observe greater interest among children in AI-based learning, suggesting that such tools are generally more engaging and appealing. This supports the potential of AI in enhancing student motivation and involvement in the learning process.

uncertain or unconvinced about their role in improving physical health and activity levels. These mixed opinions highlight the need for further study and evidence on the physical and mental health impacts of AI in education.

Sr. No.	Difficulty	Total Frequency	Percentage (%)
1	Excessive screen time	21	70.0%
2	Reduced interaction with teachers and peers	20	66.7%
3	Concerns about privacy and data security	13	43.3%
4	High cost of AI-based tools	10	33.3%
5	Difficulty in understanding AI-generated content	6	20.0%
6	Unskilled teaching staff	5	16.7%

Source: Field Survey, 2025

**Table No.10: Challenges Faced by Children in Using AI**

Table No. 10 outlines the key challenges faced by children while using AI-based educational tools. The most frequently cited issue is excessive screen time, reported by 70% of respondents, followed closely by reduced interaction with teachers and peers at 66.7%. These two concerns reflect the potential negative impact of AI on children's physical well-being and social development. Privacy and data security concerns were also notable, mentioned by 43.3%, highlighting apprehensions about the safety of digital learning environments. Additionally, 33.3% pointed to the high cost of AI tools as a barrier, while 20% noted difficulty in understanding AI-generated content. A smaller segment (16.7%) identified the presence of unskilled teaching staff as a challenge in effectively integrating AI tools. Overall, the data indicates that while AI tools offer learning advantages, their adoption is hindered by significant challenges, particularly in terms of health, social interaction, affordability, and accessibility, suggesting the need for careful planning, training, and moderation in AI-based educational practices.

Sr. No.	Response Category	Frequency	Percent	Cumulative Percent
1	Disagree	7	23.3%	23.3%
2	Neutral	6	20.0%	43.3%
3	Strongly Agree	2	6.7%	50.0%
4	Strongly Disagree	9	30.0%	80.0%
5	Agree	6	20.0%	100.0%
	Total	30	100.0%	

Source: Field Survey, 2025

**Table No.11: Respondents' Perception of the Opportunities for AI Integration in Primary Education**

Table No. 11 presents respondents' perceptions regarding the opportunities for integrating AI in primary education. The responses show a diverse and cautious outlook. A significant portion—30% strongly disagreed and 23.3% disagreed—with the idea that AI offers real opportunities in this field, totaling over half (53.3%) who hold a negative view. Meanwhile, 20% remained neutral, and only 6.7% strongly agreed and 20% agreed, indicating a minority with a positive perception. The overall interpretation suggests that a majority of respondents

are skeptical or unsure about the benefits and potential of AI integration in primary education. This could stem from concerns about technological readiness, infrastructure, teacher training, or previous negative experiences. The data highlights the need for awareness, demonstrations of successful AI implementation, and supportive policy initiatives to shift perceptions and explore AI's role more confidently in primary educational settings.

Sr. No.	Response Category	Frequency	Percent	Cumulative Percent
1	Highly Negative	2	6.7%	6.7%
2	Highly Positive	3	10.0%	16.7%
3	No Change	1	3.3%	20.0%
4	Negative	6	20.0%	40.0%
5	Positive	18	60.0%	100.0%
	Total	30	100.0%	

Source: Field Survey, 2025

**Table No.12: Respondents' Views on How the Use of AI Tools in Primary Education Will Change the Role of Teachers**

Table No. 12 reflects respondents' views on how the use of AI tools in primary education may affect the role of teachers. A majority of participants (60%) believe the change will be positive, while 10% see it as highly positive, indicating strong support for the idea that AI can enhance and support the teacher's role rather than replace it. Conversely, 20% believe the change will be negative, and a small portion (6.7%) view it as highly negative, expressing concerns about potential drawbacks. Only 3.3% believe there will be no change in the teacher's role. This data suggests that most respondents foresee AI as a complementary tool that can empower teachers, possibly by easing administrative burdens, personalizing learning, and offering new teaching strategies. However, the presence of some negative views also points to the need for teacher training, awareness, and supportive infrastructure to ensure that AI serves as a supportive partner rather than a disruptive force in education.

Sr. No.	Response Category	Frequency	Percent	Cumulative Percent
1	Highly Negative	1	3.3%	3.3%
2	Highly Positive	6	20.0%	23.3%
3	No Change	3	10.0%	33.3%
4	Negative	5	16.7%	50.0%
5	Positive	15	50.0%	100.0%
	Total	30	100.0%	

Source: Field Survey, 2025

**Table No.13: Respondents' Views on the Impact of AI Tools on Learning Outcomes in Primary Education**

Table No. 13 presents respondents' views on the impact of AI tools on learning outcomes in primary education. A significant portion—50%—believe the impact is positive, and 20%

consider it highly positive, indicating that 70% of respondents perceive AI as beneficial for enhancing learning outcomes. Meanwhile, 16.7% view the impact as negative, 10% see no change, and only 3.3% perceive it as highly negative. The overall interpretation suggests that the majority of respondents are optimistic about AI's potential to improve learning performance and educational effectiveness at the primary level. However, a minority of skeptical responses indicates that there are still concerns or uncertainties, possibly due to limitations in access, implementation challenges, or lack of training. These insights highlight the need to build trust, provide evidence of success, and support teachers and schools in effectively integrating AI for improved learning outcomes.

Sr. No.	Response Category	Frequency	Percent	Cumulative Percent
1	Not at all	9	30.0%	30.0%
2	To some extent	7	23.3%	53.3%
3	To a large extent	2	6.7%	60.0%
4	Can completely replace teachers	2	6.7%	66.7%
5	To a very small extent	10	33.3%	100.0%
	Total	30	100.0%	

Source: Field Survey, 2025

**Table No.14: Respondents' Views on Whether AI Tools Can Replace Teachers in the Age of AI**

Table No. 14 presents respondents' views on whether AI tools can replace teachers in the age of AI. A majority of respondents—30% said “Not at all”, and 33.3% said “To a very small extent”, together making up 63.3% of the sample. This indicates that most respondents believe AI cannot fully replace teachers. An additional 23.3% believe AI can replace teachers to some extent, while only 6.7% each think AI could replace them to a large extent or completely. The overall interpretation reveals a strong belief that teachers remain essential to the education process, even in the age of advanced technology. While some accept AI as a supportive tool, the idea of it completely replacing human educators is largely rejected. This reflects trust in the unique human elements of teaching—such as emotional connection, mentorship, and adaptability—which AI currently lacks. The findings emphasize the perception of AI as a complement, not a substitute, to educators.

Sr. No.	Required Change Category	Frequency	Percent (%)
1	Acquiring knowledge and skills in technology	15	50.0%
2	Using AI and new educational tools	5	16.7%
3	Staying updated / Self-learning / Adaptability	4	13.3%
4	Maintaining emotional/social awareness and core teaching roles	3	10.0%

5	Focusing on interaction and engagement (games, communication, reading)	2	6.7%
6	Resistance to AI / Unwillingness to change / Negative response	1	3.3%
Total		30	100.0%

Source: Field Survey, 2025

**Table No.15: Required Changes for Traditional Teachers in the Age of AI – Survey Data**

Table No. 15 outlines the required changes for traditional teachers in the age of AI, as perceived by the respondents. Half of the participants (50%) emphasized the need for teachers to acquire knowledge and skills in technology, highlighting it as the most critical area of change. Additionally, 16.7% suggested that teachers must start actively using AI and modern educational tools, while 13.3% stressed the importance of self-learning, adaptability, and staying updated. A smaller portion focused on the emotional and social roles of teachers (10%) and the need to enhance student engagement through games and communication (6.7%). Only 3.3% reflected a resistant or negative attitude toward AI integration. The interpretation indicates a clear consensus on the importance of technological upskilling and openness to innovation among teachers. At the same time, the need to retain humanistic aspects such as emotional awareness and interactive engagement is also recognized. These findings suggest that in order to thrive in the AI era, teachers must balance technical competencies with their core educational values, thereby evolving into digitally empowered yet emotionally responsive educators.

**Hypothesis No. 1:** AI tools significantly enhance students' learning and skills.

**Adjusted Hypothesis ( $H_0$ ):** There is no connection between the use of AI tools and the enhancement of students' learning and skill development.

In this research, the chi-square test for independence was applied using data from Table 7: Skills Developed with AI Tools. The objective was to find out if AI tools have a statistically significant impact on skill development such as logical reasoning, general knowledge, digital literacy, creativity, etc. The test condition holds as two categorical variables were used: 1) Skill categories (9 types) and 2) Frequency of responses. This test was applied at the 5% significance level, with 8 degrees of freedom

#### Case Processing Summary

Cases	Valid	Missing	Total
Skills Developed with AI Tools	30	0	30

#### Observed vs. Expected Frequencies (Table 7 Summary)

Skill Category	Observed	Expected
Logical Reasoning	10	7.67
Mathematical & Quantitative Skills	9	7.67
General Knowledge	10	7.67
Digital Literacy	13	7.67

Language Skills	7	7.67
Memory & Learning Speed	7	7.67
Creativity	5	7.67
Social & Emotional Skills	5	7.67
Communication Skills	3	7.67

The table presents the comparison between the observed and expected number of responses for each skill category developed through AI tools. If all skills were equally developed, each would have an expected frequency of 7.67. However, the observed data shows that skills like Digital Literacy (13), Logical Reasoning (10), and General Knowledge (10) were developed more frequently than expected. On the other hand, Communication Skills (3), Creativity (5), and Social & Emotional Skills (5) were developed less frequently. This indicates that AI tools are perceived to be more effective in enhancing technical and cognitive skills, while less effective in developing soft skills and communication abilities among primary school students.

#### Chi-Square Test Result for Hypothesis 1

Hypothesis	N of Valid Cases	Degrees of Freedom	Pearson Chi-Square	Table Value ( $\chi^2 @ 0.05$ )	P-value	Decision
$H_0$ : No connection between AI usage and student skills	30	8	0.000	15.51	1.000 (P > 0.05)	Null Accepted

The chi-square test was conducted to examine whether there is a significant relationship between the use of AI tools and the development of specific skills among primary students. The calculated Chi-square value is 0.000, and the p-value is 1.000, which is greater than the significance level of 0.05. Additionally, the Chi-square value is much lower than the critical value of 15.51 (at 8 degrees of freedom). This statistical outcome leads us to accept the null hypothesis ( $H_0$ ). It means that, based on the current sample, there is no statistically significant association between AI usage and skill development in students. However, it is important to note that descriptive analysis from the same data set revealed some insightful patterns—for instance, 43.3% of respondents believed that AI helped in developing digital literacy, and 33.3% observed improvement in logical reasoning and general knowledge. These trends, though not statistically significant due to sample size or variance, indicate potential areas where AI may have a positive influence on skill development.

In conclusion, while the statistical test does not confirm a significant link between AI tools and students' skill enhancement, qualitative and descriptive data suggest that AI might still play a supportive role in developing certain cognitive and digital competencies. Therefore, further research with a larger sample size is recommended to validate these emerging trends.

**Hypothesis No. 2:** Most stakeholders believe AI can assist but not replace teachers.

**Adjusted Hypothesis ( $H_0$ ):** There is no difference in opinion between stakeholders who believe AI can assist versus those who believe AI can replace teachers.

This hypothesis was tested using Table 14: Respondents' Views on Whether AI Can Replace Teachers. Responses were grouped as follows:

- Assist = "Not at all", "To some extent", "To a very small extent" → Total = 26
- Replace = "To a large extent", "Completely" → Total = 4

The Chi-square test for independence was used here for two categorical variables: 1) Type of response (Assist or Replace) and 2) Frequency. This test was applied at the 5% significance level, with 1 degree of freedom (2 categories - 1).

#### Case Processing Summary

Cases	Valid	Missing	Total
AI Assist vs Replace	30	0	30

#### Observed vs. Expected Responses (Grouped)

Response Category	Observed Frequency	Expected Frequency
Assist	26	15
Replace	4	15

The table compares observed and expected frequencies of responses regarding whether AI should assist or replace teachers. Out of 30 respondents, 26 favored AI as an assistant, while only 4 believed it could replace teachers. Statistically, if there were no preference, both categories would be expected to have 15 responses each. However, the observed data shows a strong skew toward the 'Assist' category, indicating that most respondents prefer AI as a supportive tool, even though this difference was not statistically significant in the chi-square test.

#### Chi-Square Test Result for Hypothesis 1

Hypothesis	N of Valid Cases	Degrees of Freedom	Pearson Chi-Square	Table Value ( $\chi^2 @ 0.05$ )	P-value	Decision
$H_0$ : No difference between "Assist" and "Replace" responses	30	1	0.000	3.84	1.000 (P > 0.05)	Null Accepted

The chi-square test was conducted to examine whether there is a statistically significant difference between stakeholders who believe AI can assist teachers and those who believe it can replace them. The test used data from a sample of 30 valid responses, with the responses grouped into two categories: "Assist" (including "Not at all," "To some extent," and "To a very small extent") and "Replace" (including "To a large extent" and "Can completely replace teachers"). The calculated chi-square value was 0.000, and the p-value was 1.000, which is greater than the significance level of 0.05. Additionally,

the chi-square value was much lower than the table value of 3.84 for 1 degree of freedom. Based on these results, the null hypothesis was accepted, indicating that there is no statistically significant difference in how stakeholders perceive the role of AI in replacing or assisting teachers. However, a descriptive analysis of the data revealed a strong pattern: 86.7% of the respondents (26 out of 30) believe that AI can only assist teachers, while only 13.3% think AI has the potential to replace them. This clearly shows that, although the statistical test did not confirm a significant difference, there is a strong qualitative tendency in favor of AI being used as a supportive tool rather than a replacement for human educators.

In conclusion, while the statistical findings do not show a significant variation between the two groups, the descriptive evidence highlights that the majority of stakeholders view AI as a means to enhance and support teaching, not as a substitute for teachers. This insight suggests a need for future research with a larger sample size to confirm this trend more conclusively.

**Summary Table: Hypothesis Testing Results**

Hypothesis No.	Hypothesis Statement	Test Used	p-value	Result	Interpretation
$H_1$	AI tools enhance students' learning and skills.	Chi-square (df=8)	1.000	X Not Significant	No strong statistical link, but descriptive support
$H_2$	Stakeholders believe AI assists but doesn't replace teachers.	Chi-square (df=1)	1.000	X Not Significant	Statistically insignificant, descriptively supported

## KEY FINDINGS

The following findings are based on survey responses from various stakeholders involved in primary education. They reflect current awareness, usage patterns, perceived benefits, challenges, and evolving perspectives on the role of AI in teaching and learning environments.

1. 56.7% of respondents are aware of AI-based educational tools, indicating moderate awareness but room for improvement.
2. 53.3% of children do not use AI tools at home, showing limited exposure outside the classroom.
3. 50% of respondents reported no use of common AI tools like ChatGPT, Byju's, or smart classroom apps, reflecting a lack of widespread adoption.
4. 43.3% of respondents believe AI-based tools generate very high interest among children, suggesting they are more engaging than traditional textbooks.
5. Digital literacy (43.3%), logical reasoning (33.3%), and general knowledge (33.3%) were the most commonly developed skills through AI tools.
6. 70% of respondents cited excessive screen time as a major challenge, followed by 66.7% who noted reduced interaction with teachers and peers.
7. 53.3% of respondents expressed disagreement or strong disagreement about AI offering real opportunities in primary education.

8. 70% of respondents had a positive or highly positive view of AI's impact on learning outcomes, indicating perceived educational benefits.
9. 63.3% believe AI can assist but not replace teachers, reinforcing the supportive—not substitutive—role of technology.
10. 50% of respondents emphasized the need for teachers to acquire technological skills, indicating a clear demand for teacher upskilling in the AI era.

## REFERENCES

1. National Sample Survey Office (NSSO). (2019). Household Social Consumption on Education in India (Report No. 75/25). Ministry of Statistics and Programme Implementation, Government of India.
2. NITI Aayog. (2021). National Strategy for Artificial Intelligence. Retrieved from <https://www.niti.gov.in>
3. UNESCO. (2023). Education: From disruption to recovery. Retrieved from <https://www.unesco.org/en/education>
4. Ministry of Education. (2020). National Education Policy 2020. Government of India.